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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,828	03/31/2000	Yuval Ofek	07072-097001	2351
45456	7590	07/12/2005	EXAMINER	
RICHARD M. SHARKANSKY PO BOX 557 MASHPEE, MA 02649			NGUYEN, MIKE	
			ART UNIT	PAPER NUMBER
			2182	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/540,828

Applicant(s)

OFEK ET AL.

Examiner

Mike Nguyen

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-78 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-78 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/16/04 & 4/25/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1-78 are pending for the examination.

#### *Drawings*

2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

#### *Double Patenting*

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-78 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-31 of copending Application No. 09/539,966. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to be grouped "a plurality of first directors" and "a plurality of second directors" into "a plurality of first director boards" and "a plurality of second director boards" in the system interface, or the data storage system in order to provide more reliable in transferring data of system interface and to protect against total system failure in the event of a failure in a component or subassembly of the storage

Art Unit: 2182

system. In addition, it would have been obvious to put “a crossbar switch” in the director boards in order to provide same motivation as above.

5. Claims 1-78 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of copending Application No. 09/540,825. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to be grouped “a plurality of first directors” and “a plurality of second directors” into “a plurality of first director boards” and “a plurality of second director boards” and included “a crossbar switch” in the director boards in order to provide more reliable in transferring data of system interface and to protest against total system failure in the event of a failure in a component or subassembly of the storage system. In addition, it would have been obvious to put “a pair of message network boards having a switching network” in the message network in order to provide same motivation as above.

6. Claims 1-78 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2, 5-6 and 9-10 of U.S. Patent No. 6,651,130 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to include “a common bus, such as interconnecting the data pipe, the microprocessor, and the controller” in order to provide more reliable in transferring data of system interface and to protest against total system failure in the event of a failure in a component or subassembly of the storage system.

7. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 15, 16, 58, 60, 63, 66, 72 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (U.S. Pat. No. 5,214,768) in view of Gaskins (U.S. Pat. No. 5,903,911).

As to claim 15, Martin teaches a method for operating a data storage system adapted to transfer data between a host computer/server and a bank of disk drives (see figure 1 elements 12, 44).

Although the method taught by Martin shows substantial features of the claimed invention (discussed above), it fails to explicitly teach: transferring messages through a message network with the data being transferred between the host computer/server and the bank of disk drives through a cache memory, such message network being independent of the cache memory. Gaskins; however, teaches transferring messages through a message network with the data being transferred between the host computer/server and the bank of disk drives through a cache memory, such message network being independent of the cache memory (see figure 2 elements 206, 208 and figures 3, 4 and column 9 lines 10-65). Given the teaching of Gaskins, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Martin by employing the well known or conventional feature of the method, such as

Art Unit: 2182

taught by Gaskins, in order to provide increasing the bandwidth of the data transfer section (see column 4 lines 39-52).

As to claim 16, Martin teaches a method of operating a data storage system (fig. 1) adapted to transfer data between a host computer/server (element 12 of fig. 1) and a bank of disk drives (element 56 of fig. 1) through a system interface (fig. 1), interface comprising: a plurality of first directors coupled to host computer/server (elements 14, 16, 18, 19 of fig. 1 and col. 5 lines 20-30); a plurality of second directors coupled to the bank of disk drives (elements 48 of fig. 1 and col. 5 lines 49-58); and a data transfer section coupled to the plurality of first and second directors (element 42 of fig. 2 and col. 7 lines 25-34 and col. 14 lines 4-18), such method comprising: a message network (element 42 of fig. 2 and col. 7 lines 25-34 and col. 14 lines 4-18).

Although the method taught by Martin shows substantial features of the claimed invention (discussed above), it fails to explicitly teach: a cache memory, message network being independent of the cache memory. Gaskins; however, teaches a cache controller (cache controller 206 of fig. 2) is independent of a cache memory (cache memory 206 of fig. 2 and col. 9 lines 10-65). Given the teaching of Gaskins, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Martin by employing the well known or conventional feature of the method, such as taught by Gaskins, in order to provide increasing the bandwidth of the data transfer section (see column 4 lines 39-52).

Art Unit: 2182

As to claim 58, Martin teaches a system (fig. 1), comprising:  
a first director (see figure 1 elements 14, 16, 18, 19 and column 5 lines 20-30);  
a second director (see figure 1 element 48 and column 5 lines 49-58);  
a message network coupled to the first director and the second director (see figure 2 element 42 and column 7 lines 25-34 and column 14 lines 4-18); and

Although the system taught by Martin shows substantial features of the claimed invention (discussed above), it fails to explicitly teach: a cache memory, wherein the first and second directors with data in such data transfer passing through the cache memory in response to messages passing between the first directors and the second directors through the message network, and wherein each one of the messages includes a destination field. Gaskins; however, teaches a cache memory (see figure 2 element 206), wherein the first and second directors with data in such data transfer passing through the cache memory in response to messages passing between the first directors and the second directors through the message network (see figures 3, 4 and column 9 lines 10-65), and wherein each one of the messages includes a destination field (see column 7 lines 66-67). Given the teaching of Gaskins, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Martin by employing the well known or conventional feature of the system, such as taught by Gaskins, in order to provide increasing the bandwidth of the data transfer section (see column 4 lines 39-52).

As to claim 60, Martin teaches a data storage system for transferring data between a host computer/server and bank of disk drives through a system interface (fig. 1), such system interface comprising:

a plurality of first directors coupled to host computer/server (see figure 1 elements 14, 16, 18, 19 and column 5 lines 20-30);

a plurality of second directors coupled to the bank of disk drives (see figure 1 element 48 and column 5 lines 49-58);

a message network coupled to the plurality of the first directors and the plurality of the second directors (see figure 2 element 42 and column 7 lines 25-34 and column 14 lines 4-18);  
and

Although the system interface taught by Martin shows substantial features of the claimed invention (discussed above), it fails to explicitly teach: a cache memory, wherein the first and second directors with data in such data transfer passing through the cache memory in response to messages passing between the first directors and the second directors through the message network, and wherein each one of the messages includes a destination field. Gaskins; however, teaches a cache memory (see figure 2 element 206), wherein the first and second directors with data in such data transfer passing through the cache memory in response to messages passing between the first directors and the second directors through the messaging network (see figures 3, 4 and column 9 lines 10-65), and wherein each one of the messages includes a destination field (see column 7 lines 66-67). Given the teaching of Gaskins, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Martin by employing the well known or conventional feature of the system interface, such as taught by Gaskins, in order to provide increasing the bandwidth of the data transfer section (see column 4 lines 39-52).



Art Unit: 2182

As to claim 63, Martin teaches a system (fig. 1), comprising:

a plurality of first directors (see figure 1 elements 14, 16, 18, 19 and column 5 lines 20-30);

a plurality of second directors (see figure 1 element 48 and column 5 lines 49-58);

a message network, coupled to the plurality of first directors and the plurality of second director (see figure 2 element 42 and column 7 lines 25-34 and column 14 lines 4-18); and

Although the system taught by Martin shows substantial features of the claimed invention (discussed above), it fails to explicitly teach: a cache memory, wherein the first and second directors with data in such data transfer passing through the cache memory in response to messages passing between the first directors and the second directors through the message network, and wherein each one of the messages includes a destination field. Gaskins; however, teaches a cache memory (see figure 2 element 206), wherein the first and second directors with data in such data transfer passing through the cache memory in response to messages passing between the first directors and the second directors through the message network (see figures 3, 4 and column 9 lines 10-65), and wherein each one of the messages includes a destination field (see column 7 lines 66-67). Given the teaching of Gaskins, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Martin by employing the well known or conventional feature of the system, such as taught by Gaskins, in order to provide increasing the bandwidth of the data transfer section (see column 4 lines 39-52).

As to claim 66, Martin teaches a system (fig. 1), comprising:

a first director (see figure 1 elements 14, 16, 18, 19 and column 5 lines 20-30);

Art Unit: 2182

a second director (see figure 1 element 48 and column 5 lines 49-58);

a message network coupled to the first director and the second director (see figure 2 element 42 and column 7 lines 25-34 and column 14 lines 4-18); and

Although the system taught by Martin shows substantial features of the claimed invention (discussed above), it fails to explicitly teach: a cache memory, wherein the first and second directors with data in such data transfer passing through the cache memory in response to messages passing between the first directors and the second directors through the message network, and wherein each one of the messages includes a destination field. Gaskins; however, teaches a cache memory (see figure 2 element 206), wherein the first and second directors with data in such data transfer passing through the cache memory in response to messages passing between the first directors and the second directors through the message network (see figures 3, 4 and column 9 lines 10-65), and wherein each one of the messages includes a destination field (see column 7 lines 66-67). Given the teaching of Gaskins, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Martin by employing the well known or conventional feature of the system, such as taught by Gaskins, in order to provide increasing the bandwidth of the data transfer section (see column 4 lines 39-52).

As to claims 72 and 75, Martin teaches a system (fig. 1), comprising:

a plurality of directors (see figure 1 elements 14, 16, 18, 19, 48 and column 5 lines 20-30, 49-58);

a message network coupled to the message ports of the plurality of directors (see figures 2A element 42 and figure 7 and column 13 line 49 to column 14 line 36);

Although the system taught by Martin shows substantial features of the claimed invention (discussed above), it fails to explicitly teach: each one of directors having message port for messages; a cache memory; and wherein the plurality of directors control data transfer in response to said messages passing between the directors, each one of said messages including a destination field. Gaskins; however, teaches each one of directors having message port for messages (see figure 2 and column 7 lines 5-14); a cache memory (see figure 2 element 206), and wherein the plurality of directors control data transfer in response to said messages passing between the directors (see figures 3, 4 and column 9 lines 10-65), each one of said messages including a destination field (see column 7 lines 66-67). Given the teaching of Gaskins, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Martin by employing the well known or conventional feature of the system, such as taught by Gaskins, in order to provide increasing the bandwidth of the data transfer section (see column 4 lines 39-52).

#### ***Response to Amendment***

10. Applicant's arguments, see pages 27-39, filed 04/25/2005, with respect to claims 1-14, 17-57, 59, 61, 62, 64, 65, 67-71, 73 and 74 have been fully considered and are persuasive. The rejection of 1-14, 17-57, 59, 61, 62, 64, 65, 67-71, 73 and 74 has been withdrawn but the arguments with respect to claims 15, 16, 58, 60, 63, 66, 72 and 75 are not persuasive.

In response to the applicant's arguments with respect to "the memory controller 208 of Gaskin is clearly a controller as shown in fig. 3 of Gaskins and not a network; (3) controller 208 of Gaskin does not operate independently of the memory" on Remarks/Arguments page 27 lines 21-29, the Examiner believes that the Applicant misinterprets the claim rejections. The Examiner

Art Unit: 2182

agrees that Gaskin does not teach the controller is the network and operates independently of memory. However, the Examiner recites that Martin (not Gaskin) teaches a message network in the prior Office Action and the cache controller 208 of Gaskin is independent of the cache memory 206 (fig. 2 elements 206 and 208). Also, there is nowhere in claimed invention of claim 15, 16, 58, 60, 63, 66, 72 and 75 teaching the message network operates independently of the cache memory. Thus, the Applicant's argument with respect to claims 15, 16, 58, 60, 63, 66, 72, 75 are not persuasive.

### *Conclusion*

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Nguyen whose telephone number is 571 272-4153. The examiner can normally be reached on 8:00AM-4:30PM.


Art Unit: 2182

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on 571 272-4083. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Nguyen  
Patent Examiner  
Group Art Unit 2182

07/05/2005

  
**KIM HUYNH**  
**PRIMARY EXAMINER**  
7/6/05